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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,928	02/11/2004	Yoshinori Kanesaka	60824 (71719)	5505

21874 7590 04/05/2007

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EXAMINER	
HERNANDEZ, NELSON D	
ART UNIT	PAPER NUMBER
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/777,928	KANESAKA, YOSHINORI	
	Examiner	Art Unit	
	Nelson D. Hernandez	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/10/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on July 2, 2004. These drawings are acceptable.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto, US Patent 5,526,048.

Regarding claim 2, Yamamoto discloses a drive method of a CCD color image sensor (CCDs 12, 13 an d14 as shown in fig. 1), comprising the steps of: transferring unnecessary charges occurring in a photoelectric conversion element group (Fig. 4: 51) of each color in a shift register (Vertical transfer CCD 54 as shown in fig. 4) in a time period (accumulating period starting at time T1 as shown in fig. 6) of accumulating

signal charges in the photoelectric conversion element group of each color (Note that the unnecessary charges are transferred to the V-CCD 54 at time T2, which is during the accumulation time; see time diagrams for each color in fig. 6); and transferring the signal charges accumulated in the photoelectric conversion element group of each color in response to a different time period (T4 as shown in figs. 4 and 6) for each color set in the photoelectric conversion element group of each color in the shift register in the time period of accumulating the unnecessary charges in the photoelectric conversion element group of each color (Yamamoto discloses that at time T4, a vertical transfer of the effective electric charge is started, so that the effective electric charge is transferred from the vertical transfer CCD 54 to the accumulating unit 53. During this vertical transfer operation, residual electric charge starts to be accumulated in the photodiodes 51 and the vertical transfer CCD 54. After one field's worth of image signal has been transferred to the accumulating unit 53, the signal is read out at a predetermined time. Namely, the effective electric charge is outputted externally from the accumulating unit 53 through the horizontal transfer CCD 56; see col. 4, lines 26-36) (Col. 3, line 56 – col. 4, line 36; col. 5, line 9 – col. 6, line 17).

Regarding claim 4, Yamamoto discloses a color image input apparatus (See fig. 1) comprising: a CCD color image sensor (CCDs 12, 13 an d14 as shown in fig. 1) including a photoelectric conversion element group (Fig. 4: 51) of each color and a shift register (Vertical transfer CCD 54 as shown in fig. 4) of each color; means for transferring unnecessary charges occurring in a photoelectric conversion element group of each color in a shift register in a time period (accumulating period starting at time T1

as shown in fig. 6) of accumulating signal charges in the photoelectric conversion element group of each color (Note that the unnecessary charges are transferred to the V-CCD 54 at time T2, which is during the accumulation time; see time diagrams for each color in fig. 6); and means for transferring the signal charges accumulated in the photoelectric conversion element group of each color in response to a different time period (T4 as shown in figs. 4 and 6) for each color set in the photoelectric conversion element group of each color in the shift register in the time period of accumulating the unnecessary charges in the photoelectric conversion element group of each color (Yamamoto discloses that at time T4, a vertical transfer of the effective electric charge is started, so that the effective electric charge is transferred from the vertical transfer CCD 54 to the accumulating unit 53. During this vertical transfer operation, residual electric charge starts to be accumulated in the photodiodes 51 and the vertical transfer CCD 54. After one field's worth of image signal has been transferred to the accumulating unit 53, the signal is read out at a predetermined time. Namely, the effective electric charge is outputted externally from the accumulating unit 53 through the horizontal transfer CCD 56; see col. 4, lines 26-36) (Col. 3, line 56 – col. 4, line 36; col. 5, line 9 – col. 6, line 17).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto, US Patent 5,526,048 in view of Tanaka, US Patent 5,382,978.

Regarding claim 1, Yamamoto discloses a drive method of a CCD color image sensor (CCDs 12, 13 an d14 as shown in fig. 1), comprising the steps of: transferring signal charges (At time T4; see figs. 4 and 6) in a photoelectric conversion element group (Fig. 4: 51) of each color to a shift register (Vertical transfer CCD 54 as shown in fig. 4) of each color after transferring unnecessary charges in the photoelectric conversion element group of each color in the shift register ((Note that the unnecessary charges are transferred to the V-CCD 54 at time T2, which is during the accumulation time; see time diagrams for each color in fig. 6); during the time period (T4 as shown in figs. 4 and 6) of transferring the signal charges in the photoelectric conversion element group of each color in the shift register, and accumulating unnecessary charges in the photoelectric conversion element group of each color (Yamamoto discloses that at time T4, a vertical transfer of the effective electric charge is started, so that the effective electric charge is transferred from the vertical transfer CCD 54 to the accumulating unit 53. During this vertical transfer operation, residual electric charge starts to be accumulated in the photodiodes 51 and the vertical transfer CCD 54. After one field's worth of image signal has been transferred to the accumulating unit 53, the signal is read out at a predetermined time. Namely, the effective electric charge is outputted externally from the accumulating unit 53 through the horizontal transfer CCD 56; see col. 4, lines 26-36) (Col. 3, line 56 – col. 4, line 36; col. 5, line 9 – col. 6, line 17);

transferring the unnecessary charges (at time T1, see fig. 4) occurring in the photoelectric conversion element group of each color to the shift register; and in response to the time period set for each color sequentially accumulating the signal charges in the photoelectric conversion element group of each color (accumulating period starting at time T1 as shown in fig. 6; see also col. 5, lines 9-40) (Col. 3, line 56 – col. 4, line 36; col. 5, line 9 – col. 6, line 17).

Yamamoto does not explicitly disclose the transfer of unnecessary charge and signal charge is controlled being controlled by opening and closing a shift gate.

However, Tanaka teaches a CCD imaging device (Fig. 1), comprising a transfer gate (Fig. 2: 3) that is shut when to read out signal charges and is opened to read out unnecessary charges and noise-forming charges to the V-CCD (Fig. 1: 4) (Col. 3, line 62 – col. 4, line 24).

Therefore, taking the combined teaching of Yamamoto in view of Tanaka as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamamoto by controlling the transfer of unnecessary charges and signal charges by opening and closing a shift gate. The motivation to do so would have been to separate the desired signal charges from undesired signals and noise-forming charges in order to improve the quality of images captured with the CCD image sensor.

Regarding claim 3, the combined teaching of Yamamoto in view of Tanaka teaches the same as discussed and analyzed in claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson D. Hernandez
Examiner
Art Unit 2622

NDHH
March 29, 2007

TUAN HO
PRIMARY EXAMINER